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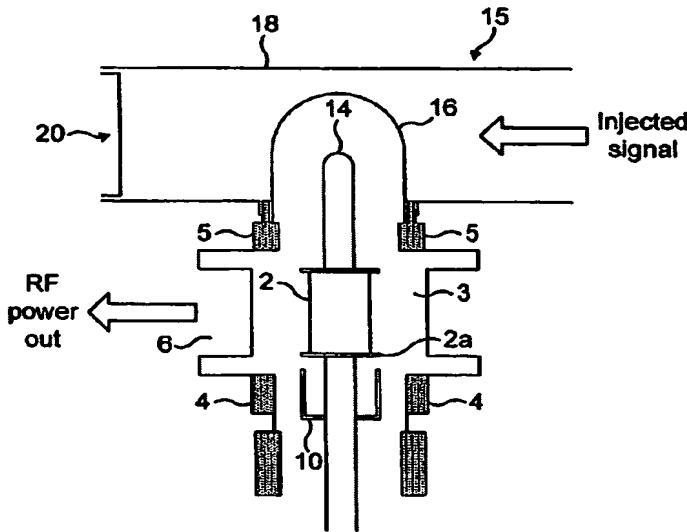
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(54) Title: MAGNETRON



(57) **Abstract:** A phase locked magnetron comprises a cathode and anode and an interaction space in between. The cathode is coupled to an injected locking signal, which prompts the operation of the magnetron to be in phase with the phase of the locking signal. From a magnetron of the type in which the cathode is at a large negative potential, the coupling to the locking signal is by non-contact means, in particular, by extending the cathode into a waveguide in which the locking signal is present. An alternative arrangement is for a magnetron of the type in which the cathode is substantially at ground potential. In this arrangement the coupling is by direct electrical connection to a conductor having the injected locking signal.